



ASHBY.1.DIV.ST25.txt  
SEQUENCE LISTING

<110> Ashby, Matthew  
<120> Methods for the Survey and Genetic Analysis of Populations  
<130> ASHBY/1 DIV  
<140> US 10/607,077  
<141> 2003-06-25  
<150> US 09/829855  
<151> 2001-04-10  
<150> PCT/US01/11609  
<151> 2001-04-10  
<150> US 60/196063  
<151> 2000-04-10  
<150> US 60/196258  
<151> 2000-04-11  
<160> 244  
<170> PatentIn version 3.1  
<210> 1  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA  
<400> 1  
acgatgagca ctagct 16  
  
<210> 2  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA  
<400> 2  
acgatgagta ctagct 16  
  
<210> 3  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA  
<400> 3

acgatgatga ctagct

16

<210> 4  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 4  
 acgatggatg ctagct

16

<210> 5  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 5  
 atgctagtct ggagct

16

<210> 6  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 6  
 atggctgtcg tcagct

16

<210> 7  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 7  
 atggttgtcg tcagct

16

<210> 8  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 8  
attccgtgcc gtagct 16

<210> 9  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected.  
in Wyoming, USA

<400> 9  
cactagtggc gcagct 16

<210> 10  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 10  
cccccgtagc gaagct 16

<210> 11  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 11  
cccccgtagc gcagct 16

<210> 12  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 12  
cccccttcct ccagct 16

<210> 13  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from

microbes in soil sample collected  
in Wyoming, USA

<400> 13  
ccccggtgcc gcagct 16

<210> 14  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 14  
ccgggtagtc ccagct 16

<210> 15  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 15  
cctccgtgcc gaagct 16

<210> 16  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 16  
cctccgtgcc gcagct 16

<210> 17  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 17  
cctccgtgct gcagct 16

<210> 18  
<211> 16  
<212> DNA  
<213> Unknown

<220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 18  
 cctcggcgcc gcagct 16

<210> 19  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 19  
 cctcgggtgcc gcagct 16

<210> 20  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 20  
 cctcgggtgtc gcagct 16

<210> 21  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 21  
 cctgggtgcc gcagct 16

<210> 22  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 22  
 cctgtgtgac gaagct 16

<210> 23  
 <211> 16

<212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 23  
 ccttggtaac gaagct 16

<210> 24  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 24  
 ccttggtacc gaagct 16

<210> 25  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 25  
 cgccagtgcc gtagct 16

<210> 26  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 26  
 cgcctgtgcc gtagct 16

<210> 27  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 27  
 cgtccgtgcc gaagct 16

<210> 28  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 28  
cgtccgtgcc gcagct 16

<210> 29  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 29  
cgtcggtgcc gcagct 16

<210> 30  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 30  
ctcccgtgcc gcagct 16

<210> 31  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 31  
ctcccgtgcc ggagct 16

<210> 32  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 32  
ctccggtgcc gcagct 16

<210>	33	
<211>	16	
<212>	DNA	
<213>	Unknown	
<220>		
<223>	ribosomal DNA sequence tag isolated from microbes in soil sample collected in Wyoming, USA	
<400>	33	
	ctcctgtgcc gaagct	16
<210>	34	
<211>	16	
<212>	DNA	
<213>	Unknown	
<220>		
<223>	ribosomal DNA sequence tag isolated from microbes in soil sample collected in Wyoming, USA	
<400>	34	
	ctcctgtgcc gcagct	16
<210>	35	
<211>	16	
<212>	DNA	
<213>	Unknown	
<220>		
<223>	ribosomal DNA sequence tag isolated from microbes in soil sample collected in Wyoming, USA	
<400>	35	
	ctgccgtgcc gaagct	16
<210>	36	
<211>	16	
<212>	DNA	
<213>	Unknown	
<220>		
<223>	ribosomal DNA sequence tag isolated from microbes in soil sample collected in Wyoming, USA	
<400>	36	
	ctgctgtgcc gaagct	16
<210>	37	
<211>	16	
<212>	DNA	
<213>	Unknown	
<220>		
<223>	ribosomal DNA sequence tag isolated from microbes in soil sample collected in Wyoming, USA	



<400> 37  
ctgtcgtgcc gaagct 16

<210> 38  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 38  
cttcagtatc gaagct 16

<210> 39  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 39  
cttccgcgcc ggagct 16

<210> 40  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 40  
cttccgtgcc gcagct 16

<210> 41  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 41  
cttccgtgcc ggagct 16

<210> 42  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected

in Wyoming, USA

<400> 42  
cttcggtgcc gcagct 16

<210> 43  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 43  
cttctgtggc gaagct 16

<210> 44  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 44  
gatccgtgcc gtagct 16

<210> 45  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 45  
gctctgtgcc gaagct 16

<210> 46  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 46  
gctgggtgcc caagct 16

<210> 47  
<211> 16  
<212> DNA  
<213> Unknown  
<220>

<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 47  
gggccgtgcc gcagct

16

<210> 48  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 48  
ggtgctcttc ggagct

16

<210> 49  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 49  
gtaaacgatg gaagct

16

<210> 50  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 50  
gtggctgtcg tcagct

16

<210> 51  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 51  
gttccgtgcc gaagct

16

<210> 52  
<211> 16  
<212> DNA

<213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 52  
 gttccgtgcc gcagct 16  
  
 <210> 53  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 53  
 tatcagtggc gcagct 16  
  
 <210> 54  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 54  
 tctccgtgcc gcagct 16  
  
 <210> 55  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 55  
 tctctgtgcc gcagct 16  
  
 <210> 56  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 56  
 tctctgtgcc gtagct 16  
  
 <210> 57

<211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 57  
 tgtccgtgcc gtagct 16

<210> 58  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 58  
 tttccgtgcc gcagct 16

<210> 59  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 59  
 acgatgataa ctagct 16

<210> 60  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 60  
 acgatgatga ctagct 16

<210> 61  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 61  
 acgatgggca ctagct 16

<210> 62  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 62  
 acggctgtcg tcagct

16

<210> 63  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 63  
 actacgagcg caagct

16

<210> 64  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 64  
 acttaatgcg ttagct

16

<210> 65  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 65  
 atgctagtct ggagct

16

<210> 66  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 66

atggctctcg tcagct 16

<210> 67  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 67  
atggctgtcg ccagct 16

<210> 68  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 68  
atggctgtcg tcagct 16

<210> 69  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 69  
atggttgtcg tcagct 16

<210> 70  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 70  
atgtagacct ggagct 16

<210> 71  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 71  
attccgtgcc gcagct 16

<210> 72  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 72  
attccgtgcc gtagct 16

<210> 73  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 73  
cacaâgcggt ggagct 16

<210> 74  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 74  
cactagtggc gcagct 16

<210> 75  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 75  
catccgtgcc gaagct 16

<210> 76  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from



microbes in soil sample collected  
in Wyoming, USA

<400> 76  
ccccagggcc caagct 16

<210> 77  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 77  
ccccggtgcc gcagct 16

<210> 78  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 78  
cccgcgtgcc ggagct 16

<210> 79  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 79  
ccgcggtgcc gtagct 16

<210> 80  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 80  
ccgggtagtc ccagct 16

<210> 81  
<211> 16  
<212> DNA  
<213> Unknown

<220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 81  
 ccgggtagtc ctagct 16

<210> 82  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 82  
 cctccgtgcc gaagct 16

<210> 83  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 83  
 cctccgtgcc gcagct 16

<210> 84  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 84  
 cctccgtgcc ggagct 16

<210> 85  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 85  
 cctcgtaagg ggagct 16

<210> 86  
 <211> 16

<212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 86  
 cctgggtgcc gcagct 16

<210> 87  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 87  
 cctggtagtc ccagct 16

<210> 88  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 88  
 cctggtagtc ctagct 16

<210> 89  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 89  
 ccttagtaac gcagct 16

<210> 90  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 90  
 ccttggtaac gaagct 16

<210> 91  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 91  
cgccagtgcc gaagct

16

<210> 92  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 92  
cgccggtgcc gcagct

16

<210> 93  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 93  
cgcctgtgcc gtagct

16

<210> 94  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 94  
cgctcgtggc gaagct

16

<210> 95  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 95  
cggaggcgtc gtagct

16

<210> 96  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 96  
 cgtcagtgtc gcagct 16

<210> 97  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 97  
 cgtccgtgcc gaagct 16

<210> 98  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 98  
 cgtccgtgcc gcagct 16

<210> 99  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 99  
 cgtccgtgcc ggagct 16

<210> 100  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 100  
cgtcggtgcc gcagct 16

<210> 101  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 101  
ctccagtgcc gcagct 16

<210> 102  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 102  
ctcccgtgcc acagct 16

<210> 103  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 103  
ctcccgtgcc gcagct 16

<210> 104  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 104  
ctcccgtgcc ggagct 16

<210> 105  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected

in Wyoming, USA

<400> 105  
ctccggtgcc gcagct 16

<210> 106  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 106  
ctcctgtgcc gcagct 16

<210> 107  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 107  
ctgccgcgcc ggagct 16

<210> 108  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 108  
ctgccgtgcc gaagct 16

<210> 109  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 109  
ctgccgtgcc taagct 16

<210> 110  
<211> 16  
<212> DNA  
<213> Unknown  
<220>

<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 110  
ctgctgtgcc gcagct

16

<210> 111  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 111  
ctgctgtgcc gaagct

16

<210> 112  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 112  
ctgtcgtgcc gaagct

16

<210> 113  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 113  
cttccgcgcc ggagct

16

<210> 114  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 114  
cttccgtgcc gaagct

16

<210> 115  
<211> 16  
<212> DNA



<213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 115  
 cttccgtgcc gcagct 16  
  
 <210> 116  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 116  
 cttccgtgcc ggagct 16  
  
 <210> 117  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 117  
 cttcgggtgcc gcagct 16  
  
 <210> 118  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 118  
 cttcgggtgtc gcagct 16  
  
 <210> 119  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA  
  
 <400> 119  
 cttgggtgcc gcagct 16  
  
 <210> 120

<211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 120  
 ctttagtaac gcagct

16

<210> 121  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 121  
 gacccgcaag ggagct

16

<210> 122  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 122  
 gatccgtgcc gcagct

16

<210> 123  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 123  
 gctccgtgcc gaagct

16

<210> 124  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 124  
 gctccgtgcc gtagct

16

<210> 125  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 125  
 gctctgtgcc gaagct 16

<210> 126  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 126  
 gctctgtgcc gtagct 16

<210> 127  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 127  
 gggcttgtcg tcagct 16

<210> 128  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 128  
 gtaaacgatg gaagct 16

<210> 129  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 129

gttccgtgcc gcagct

16

<210> 130  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 130  
 gttccgtgcc gtagct

16

<210> 131  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 131  
 gttctgtgcc gcagct

16

<210> 132  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 132  
 tctcacgaca cgagct

16

<210> 133  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 133  
 tctcagtaac gtagct

16

<210> 134  
 <211> 16  
 <212> DNA  
 <213> Unknown  
 <220>  
 <223> ribosomal DNA sequence tag isolated from  
 microbes in soil sample collected  
 in Wyoming, USA

<400> 134  
tctccgtgcc gcagct 16

<210> 135  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 135  
tctctgtgcc gcagct 16

<210> 136  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 136  
tggacgttgc ggagct 16

<210> 137  
<211> 16  
<212> DNA  
<213> Unknown  
<220>  
<223> ribosomal DNA sequence tag isolated from  
microbes in soil sample collected  
in Wyoming, USA

<400> 137  
tttccgtgcc ggagct 16

<210> 138  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide

<220>  
<221> modified\_base  
<222> (1)..(1)  
<223> Biotin

<400> 138  
gtgtaghrgt gaaatdclya 20

<210> 139

<211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 139  
 ytcacgrcay gagctgacga c

21

<210> 140  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<220>  
 <221> modified\_base  
 <222> (1)..(1)  
 <223> 5' Phosphate

<220>  
 <221> modified\_base  
 <222> (28)..(28)  
 <223> Dideoxy

<400> 140  
 gtcacaggtc tacatcctag tcaggacc

28

<210> 141  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 141  
 ataggtcctg actaggatgt agac

24

<210> 142  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<220>  
 <221> modified\_base  
 <222> (1)..(1)  
 <223> 5' Phosphate

<220>  
 <221> modified\_base

<222> (28)..(28)  
 <223> Dideoxy

<400> 142  
 gctccagact agcatccgct gacttgac

28

<210> 143  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 143  
 aatgtcaagt cagcgatgc tagt

24

<210> 144  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<220>  
 <221> modified\_base  
 <222> (1)..(1)  
 <223> Biotin

<400> 144  
 ggtcctgact aggatgtaga c

21

<210> 145  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<220>  
 <221> modified\_base  
 <222> (1)..(1)  
 <223> Biotin

<400> 145  
 gtcaagtcag cggatgctag t

21

<210> 146  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<220>  
 <221> modified\_base  
 <222> (1)..(1)  
 <223> Biotin

<400> 146  
 ggattagawa cccbggtagt c

21

<210> 147  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 147  
 ataggtcctg actaggatgt agacctggag

30

<210> 148  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<400> 148  
 aatgtcaagt cagcggatgc tagtctggag

30

<210> 149  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Oligonucleotide

<220>  
 <221> modified\_base  
 <222> (1)..(1)  
 <223> 5' Phosphate

<220>  
 <221> modified\_base  
 <222> (27)..(27)  
 <223> Dideoxy

<400> 149  
 ctccaggtct acatcctagt caggacc

27

<210> 150  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence



<220>  
 <223> Oligonucleotide  
 <400> 150  
 ataggtcctg actaggatgt agacctggag 30

<210> 151  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Oligonucleotide  
 <220>  
 <221> modified\_base  
 <222> (1)..(1)  
 <223> 5' Phosphate  
 <220>  
 <221> modified\_base  
 <222> (27)..(27)  
 <223> Dideoxy  
 <400> 151  
 ctccagacta gcatccgctg acttgac 27

<210> 152  
 <211> 30  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Oligonucleotide  
 <400> 152  
 aatgtcaagt cagcggatgc tagtctggag 30

<210> 153  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence  
 <220>  
 <223> Oligonucleotide  
 <220>  
 <221> modified\_base  
 <222> (1)..(1)  
 <223> Biotin  
 <400> 153  
 ctcgatagtc acggtcctga ctaggatgta gac 33

<210> 154

<211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide

<220>  
 <221> modified\_base  
 <222> (1)..(1)  
 <223> Biotin

<400> 154  
 caggttgcaa cggtaagtc agcggatgct agt

33

<210> 155  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide

<220>  
 <221> modified\_base  
 <222> (1)..(1)  
 <223> biotin

<220>  
 <221> misc\_feature  
 <222> (22)..(22)  
 <223> A, G, C or T

<400> 155  
 taytycccar gcggybsrct tn

22

<210> 156  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide

<220>  
 <221> misc\_feature  
 <222> (25)..(25)  
 <223> A, G, C or T

<400> 156  
 ggtgbcascm gccgcggtaa yaccn

25

<210> 157  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> oligonucleotide  
  
 <220>  
 <221> misc\_feature  
 <222> (14)..(22)  
 <223> A, G, C or T  
  
 <400> 157  
 aacgagcgca accnnnnnnn nn 22  
  
 <210> 158  
 <211> 16  
 <212> DNA  
 <213> Desulfurobacterium thermolithotrophum  
  
 <400> 158  
 gtcagttgcc gaagct 16  
  
 <210> 159  
 <211> 16  
 <212> DNA  
 <213> Uncultured Aquificales OPS132  
  
 <400> 159  
 gtccgtgccg taagct 16  
  
 <210> 160  
 <211> 16  
 <212> DNA  
 <213> Bacteroides caccae  
  
 <400> 160  
 atggttgtcg tcagct 16  
  
 <210> 161  
 <211> 16  
 <212> DNA  
 <213> Actinomyces bovis  
  
 <400> 161  
 tttccgcgcc gtagct 16  
  
 <210> 162  
 <211> 16  
 <212> DNA  
 <213> Actinomyces meyeri  
  
 <400> 162  
 tttctgcgcc gtagct 16  
  
 <210> 163  
 <211> 16  
 <212> DNA  
 <213> Denitrobacterium detoxificans

<400> 163 cctccgcgcc gcagct	16
<210> 164 <211> 16 <212> DNA <213> Uncultured GNS bacteria BPC110	
<400> 164 cccggtagtc ctagct	16
<210> 165 <211> 16 <212> DNA <213> Uncultured GNS bacteria GCA004	
<400> 165 catcggtgcc gcagct	16
<210> 166 <211> 16 <212> DNA <213> Uncultured GNS bacteria GCA112	
<400> 166 cggcggtgcc gtagct	16
<210> 167 <211> 16 <212> DNA <213> Acetobacter aceti	
<400> 167 actcagtgtc gtagct	16
<210> 168 <211> 16 <212> DNA <213> Gluconobacter asaii	
<400> 168 actcagtgtc gaagct	16
<210> 169 <211> 16 <212> DNA <213> Burkholderia sp. JB1	
<400> 169 ccttagtaac gaagct	16
<210> 170 <211> 16 <212> DNA <213> Denitrobacter permanens	

<400> 170  
acgatgtcaa ctagct 16

<210> 171  
<211> 16  
<212> DNA  
<213> Desulfobacter curvatus

<220>  
<221> misc\_feature  
<222> (11)..(11)  
<223> A, G, C or T

<400> 171  
ctgctgtgcc naagct 16

<210> 172  
<211> 16  
<212> DNA  
<213> Desulfobulbus sp. BG25

<400> 172  
cctctgtgtc gcagct 16

<210> 173  
<211> 16  
<212> DNA  
<213> Legionella anisa

<400> 173  
acgatgtcaa ctagct 16

<210> 174  
<211> 16  
<212> DNA  
<213> Benzene mineralizing clone SB-1

<400> 174  
atggtgtcg tcagct 16

<210> 175  
<211> 16  
<212> DNA  
<213> Escherichia coli

<400> 175  
cgtggcttcc ggagct 16

<210> 176  
<211> 16  
<212> DNA  
<213> Uncultured Acidobacterium Sub.Div-1

<400> 176  
ccgccgtgcc gaagct 16

<210>	177	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-1	
<400>	177	
	cggctgtgcc gaagct	16
<210>	178	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-1	
<400>	178	
	ccactgtgcc gtagct	16
<210>	179	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-1	
<400>	179	
	ctgctgtgcc gcagct	16
<210>	180	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-1	
<400>	180	
	ctgccgtgcc ggagct	16
<210>	181	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-1	
<400>	181	
	ccaatgtgcc ggagct	16
<210>	182	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-1	
<400>	182	
	ccgtcgtgcc gtagct	16
<210>	183	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-1	
<400>	183	
	ccgtcgtgtc gtagct	16

<210>	184	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-1	
<400>	184	
	ctgccgtgtc gaagct	16
<210>	185	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-1	
<400>	185	
	ctcccgtgtc gaagct	16
<210>	186	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-1	
<400>	186	
	ccgccgtgcc ggagct	16
<210>	187	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-2	
<400>	187	
	ctgaggaacg aaagct	16
<210>	188	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-2	
<400>	188	
	gtgtcgtccc ggagct	16
<210>	189	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-3	
<400>	189	
	gggctgtgcc gaagct	16
<210>	190	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-3	
<400>	190	
	ggtcggtgcc ggagct	16

<210>	191	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-3	
<400>	191	
	ggtcggtgcc agagct	16
<210>	192	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-3	
<400>	192	
	ggttcgtgcc ggagct	16
<210>	193	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-3	
<400>	193	
	tgtctgtgcc ggagct	16
<210>	194	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-3	
<400>	194	
	tatccgtgcc ggagct	16
<210>	195	
<211>	16	
<212>	DNA	
<213>	Uncultured Acidobacterium Sub.Div-3	
<400>	195	
	ggtccgtgcc ggagct	16
<210>	196	
<211>	14	
<212>	DNA	
<213>	Aeropyrum pernix	
<400>	196	
	ctagggggcg ggag	14
<210>	197	
<211>	14	
<212>	DNA	
<213>	Desulfurococcus mobilis	
<400>	197	
	ctaggtgttg ggtg	14



<210> 198  
 <211> 14  
 <212> DNA  
 <213> Staphylothermus marinus

<400> 198  
 ctaggtgttg ggcg 14

<210> 199  
 <211> 14  
 <212> DNA  
 <213> Metallosphaera sedula

<400> 199  
 ctaggtgtcg cgta 14

<210> 200  
 <211> 14  
 <212> DNA  
 <213> Sulfolobus acidocaldarius

<400> 200  
 ctaggtgtcg agta 14

<210> 201  
 <211> 14  
 <212> DNA  
 <213> Sulfolobus metallicus

<400> 201  
 ctaggtgtca cgtg 14

<210> 202  
 <211> 14  
 <212> DNA  
 <213> Caldivirga maquilingensis

<400> 202  
 ctagctgttg ggtg 14

<210> 203  
 <211> 14  
 <212> DNA  
 <213> Pyrobaculum islandicum

<400> 203  
 ctagctgtcg gccg 14

<210> 204  
 <211> 14  
 <212> DNA  
 <213> Archaeoglobus fulgidus

<400> 204  
 ctaggtgtca ccga 14

<210> 205  
 <211> 14  
 <212> DNA  
 <213> Archaeoglobus veneficus

<400> 205  
 ctaggtgtca ccgg 14

<210> 206  
 <211> 14  
 <212> DNA  
 <213> Haloarcula japonica

<400> 206  
 ctaggtgtgg cgta 14

<210> 207  
 <211> 14  
 <212> DNA  
 <213> Halococcus morrhuae

<400> 207  
 ctaggtgtgg cggt 14

<210> 208  
 <211> 14  
 <212> DNA  
 <213> Methanococcus jannaschii

<400> 208  
 ctaggtgtcg cgtc 14

<210> 209  
 <211> 14  
 <212> DNA  
 <213> Pyrococcus abyssi

<400> 209  
 ctaggtgtcg ggcg 14

<210> 210  
 <211> 14  
 <212> DNA  
 <213> Picophilus oshimae

<400> 210  
 ctactgtaa actc 14

<210> 211  
 <211> 11  
 <212> PRT  
 <213> Desulfurobacterium thermolithotrophum

<400> 211

Arg Ala Gln Pro Leu Ser Leu Val Ala Ser Gly  
 1 5 10

<210> 212  
 <211> 11  
 <212> PRT  
 <213> Uncultured Aquificales OPS132

<400> 212

Arg Ala Gln Pro Leu Ser Cys Val Thr Ser Gly  
 1 5 10

<210> 213  
 <211> 13  
 <212> PRT  
 <213> Bacteroides caccae

<400> 213

Arg Ala Gln Pro Leu Ser Ser Val Thr Asn Arg Ser Cys  
 1 5 10

<210> 214  
 <211> 19  
 <212> PRT  
 <213> Actinomyces bovis

<400> 214

Arg Ala Gln Pro Leu Ser Arg Val Ala Ser Thr Leu Trp Trp Gly Leu  
 1 5 10 15

Ala Gly Asp

<210> 215  
 <211> 19  
 <212> PRT  
 <213> Actinomyces meyeri

<400> 215

Arg Ala Gln Pro Leu Pro Tyr Val Ala Ser Thr Leu Trp Trp Gly Leu  
 1 5 10 15

Val Gly Asp

<210> 216  
 <211> 18  
 <212> PRT  
 <213> Denitrobacterium detoxificans

<400> 216

Arg Ala Gln Pro Leu Pro His Val Ala Ser Ile Arg Leu Gly Thr His  
 1 5 10 15

Gly Gly

<210> 217  
 <211> 14  
 <212> PRT  
 <213> Uncultured GNS bacteria BPC110

<400> 217

Arg Ala Gln Pro Leu Leu Tyr Val Ile Arg Val Ile Pro Asp  
 1 5 10

<210> 218  
 <211> 14  
 <212> PRT  
 <213> Uncultured GNS bacteria GCA004

<400> 218

Arg Ala Gln Pro Ser Leu Tyr Val Thr Arg Ile Ile Arg Asp  
 1 5 10

<210> 219  
 <211> 14  
 <212> PRT  
 <213> Uncultured GNS bacteria GCA112

<400> 219

Arg Ala Gln Pro Ser Pro Tyr Val Ile Arg Val Ile Arg Asp  
 1 5 10

<210> 220  
 <211> 16  
 <212> PRT  
 <213> Acetobacter aceti

<400> 220

Arg Ala Gln Pro Leu Ser Leu Val Ala Ser Met Phe Gly Trp Ala Leu  
 1 5 10 15

<210> 221  
 <211> 16  
 <212> PRT  
 <213> Gluconobacter asaii

<400> 221

Arg Ala Gln Pro Leu Ser Leu Val Ala Ser Thr Phe Arg Trp Ala Leu  
 1 5 10 15

<210> 222  
 <211> 17  
 <212> PRT  
 <213> Burkholderia sp. JB1

<400> 222

Arg Ala Gln Pro Leu Ser Leu Val Ala Thr Gln Glu His Ser Arg Glu  
 1 5 10 15

Thr

<210> 223  
 <211> 15  
 <212> PRT  
 <213> Denitrobacter permanens

<400> 223

Arg Ala Gln Pro Leu Pro Leu Val Ala Thr Phe Ser Trp Ala Leu  
 1 5 10 15

<210> 224  
 <211> 19  
 <212> PRT  
 <213> Desulfobacter curvatus

<400> 224

Arg Ala Gln Pro Leu Ser Leu Val Ala Ser Thr Leu Cys Gly Asn Ser  
 1 5 10 15

Asn Glu Thr

<210> 225  
 <211> 19  
 <212> PRT  
 <213> Desulfobulbus sp. BG25

<400> 225

Arg Ala Gln Pro Leu Pro Leu Val Ala Ser Ser Ser Ala Gly His Ser  
 1 5 10 15

Lys Gly Thr

<210> 226  
 <211> 11  
 <212> PRT  
 <213> Legionella anisa

<400> 226

Arg Ala Gln Pro Leu Ser Leu Val Ala Ser Thr  
 1 5 10

<210> 227  
 <211> 16  
 <212> PRT  
 <213> Benzene mineralizing clone SB-1

<400> 227

Arg Ala Gln Pro Leu Pro Leu Val Ala Asn Arg Ser Ser Trp Gly Leu  
 1 5 10 15

<210> 228  
 <211> 19  
 <212> PRT  
 <213> Escherichia coli

<400> 228

Arg Ala Gln Pro Leu Ser Phe Val Ala Ser Gly Pro Ala Gly Asn Ser  
 1 5 10 15

Lys Glu Thr

<210> 229  
 <211> 16  
 <212> PRT  
 <213> Uncultured Acidobacterium Sub.Div-1

<400> 229

Arg Ala Gln Pro Leu Ser Leu Val Ala Ser Gly Ser Ser Arg Ala Leu  
 1 5 10 15

<210> 230  
 <211> 19  
 <212> PRT  
 <213> Uncultured Acidobacterium Sub.Div-1

<400> 230

Arg Ala Gln Pro Leu Ser Ser Val Ala Ile Gly Ser Ser Arg Ala Thr  
 1 5 10 15

Leu Ala Lys

<210> 231  
 <211> 11  
 <212> PRT  
 <213> Uncultured Acidobacterium Sub.Div-1

<400> 231

Arg Ala Gln Pro Leu Phe Ala Ser Cys His His  
 1 5 10

<210> 232  
 <211> 19  
 <212> PRT  
 <213> Uncultured Acidobacterium Sub.Div-1  
 <400> 232

Arg Ala Gln Pro Leu Phe Ala Gln Leu Pro Ser Phe Ser Trp Ala Leu  
 1 5 10 15

Cys Arg Asn

<210> 233  
 <211> 11  
 <212> PRT  
 <213> Uncultured Acidobacterium Sub.Div-1  
 <220>  
 <221> MISC\_FEATURE  
 <222> (8)..(8)  
 <223> Unable to determine

<400> 233  
 Arg Ala Gln Pro Leu Leu Pro Xaa Ala Ile Ile  
 1 5 10

<210> 234  
 <211> 11  
 <212> PRT  
 <213> Uncultured Acidobacterium Sub.Div-1  
 <400> 234

Arg Ala Gln Pro Leu Leu Pro Val Ala Thr Ile  
 1 5 10

<210> 235  
 <211> 11  
 <212> PRT  
 <213> Uncultured Acidobacterium Sub.Div-1  
 <400> 235

Arg Ala Gln Pro Leu Ser Pro Val Ala Ile Ile  
 1 5 10

<210> 236  
 <211> 11  
 <212> PRT  
 <213> Uncultured Acidobacterium Sub.Div-1

&lt;400&gt; 236

Arg Ala Gln Pro Leu Ser Ser Val Ala Thr Ile  
 1 5 10

&lt;210&gt; 237

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Uncultured Acidobacterium Sub.Div-1

&lt;400&gt; 237

Arg Ala Gln Pro Leu Phe Leu Val Ala Thr Ile  
 1 5 10

&lt;210&gt; 238

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Uncultured Acidobacterium Sub.Div-1

&lt;400&gt; 238

Arg Ala Gln Pro Ser Ser Leu Val Ala Asn Thr Leu Trp  
 1 5 10

&lt;210&gt; 239

&lt;211&gt; 18

&lt;212&gt; PRT

&lt;213&gt; Uncultured Acidobacterium Sub.Div-2

&lt;400&gt; 239

Arg Ala Gln Pro Leu His Val Val Ala Thr Arg Lys Arg Glu Leu Tyr  
 1 5 10 15

Val Asp

&lt;210&gt; 240

&lt;211&gt; 18

&lt;212&gt; PRT

&lt;213&gt; Uncultured Acidobacterium Sub.Div-2

&lt;400&gt; 240

Arg Ala Gln Pro Leu His Val Val Ala Thr Pro Gln Gly Gly Thr Leu  
 1 5 10 15

Arg Gly

&lt;210&gt; 241

&lt;211&gt; 19

&lt;212&gt; PRT

&lt;213&gt; Uncultured Acidobacterium Sub.Div-3



<400> 241

Arg Ala Gln Pro Ser Ser Leu Val Ala Asn Pro Gln Gly Lys His Pro  
1 5 10 15

Lys Gly Thr

<210> 242

<211> 11

<212> PRT

<213> Uncultured Acidobacterium Sub.Div-3

<400> 242

Arg Ala Arg Pro Leu Ser Cys Val Ala Ile Ile  
1 5 10

<210> 243

<211> 18

<212> PRT

<213> Uncultured Acidobacterium Sub.Div-3

<400> 243

Arg Ala Gln Pro Leu Ser Cys Val Ala Asn Pro Gln Gly Cys Thr Leu  
1 5 10 15

Arg Arg

<210> 244

<211> 20

<212> PRT

<213> Uncultured Acidobacterium Sub.Div-3

<400> 244

Arg Ala Gln Pro Ser Pro Cys Val Ala Thr Pro Pro Arg Ala Gly Ala  
1 5 10 15

Leu Ser Gly Asp  
20